

## LATITUDE OF LOVEDALE.

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In the year 1889 a series of observations was made to determine the astronomical latitude of Lovedale, and although the present is somewhat remote from that at which the determination was made, the results may not be lacking in interest.

The stars chosen were :

$\alpha$  *Ceti*, R.A. 2 h. 56 m. 28.6 s. (1889).  
Dec. + 3° 39' 13.0"

and :

$\delta$  *Hydri*, R.A. 2 h. 19 m. 46.6 s. (1889)  
Dec. — 69° 9' 52.4"

These stars were extremely suitable for the purpose.

(1) They culminated, one north the other south, at nearly the same altitude, viz. :

$\alpha$  *Ceti*, 53° 34'  
 $\delta$  *Hydri*, 53° 37'

(2) They culminated also within half an hour of each other.

(3) Both stars are well-known standard stars.

The observations for latitude were taken with a sextant by the usual well-known method of circum-meridian altitudes, the corrections for first and second differences being rigorously applied.

The telescope of the sextant was a one-inch transit glass, specially fitted to the sextant for the operation. The light was reflected on to the vernier by a mirror from a bull's-eye lantern, care being taken to keep the light at the same angle of incidence. Indeed the lantern, reflector, and sextant were all rigidly fixed to a wooden stand, moving on altazimuth bearings that I had specially constructed for the purpose.

The observations, north and south, were made over the same portions of the sextant; thus the errors due to defective centering or unequal graduations mutually destroyed one another.

The times of meridian passage of both stars being less than half an hour, there was little chance of the instrumental adjustments altering seriously during the period covered by the observations, usually about an hour and a half.

There were seven determinations made, viz. :

Date.	No. of Observations.		Resulting Lat.
	N.	S.	
1889. Nov. 16	11	17	— 32° 46' 36.7"
19	10	18	37.5
23	8	10	31.9
25	7	18	31.4
26	9	11	31.5
27	8	11	37.5
28	8	6	34.0

The mean value of the latitude of Lovedale resulting from these observations is

$$— 32^{\circ} 46' 34.4'' + 1.9''$$